US CLAIMS

1. Particle detector comprising means (1, 2, 3) of delivering electrical pulses starting from detected particles, one electrical pulse being delivered for one detected particle, and means (4) of counting the delivered electrical pulses, characterized in that it comprises means capable of receiving and transmitting electrical pulses originating from at least one second particle detector to the counting means (4), and means capable of transmitting the electrical pulses that it delivers and the electrical pulses that it receives from the said second particle detector to counting means of a third particle detector.

2. Particle detector according to claim 1, in which the means capable of receiving and transmitting electrical pulses originating from at least one second particle detector to the counting means (4) and the means capable of transmitting electrical pulses that it delivers and electrical pulses that it receives from the said second particle detector to a third particle detector include an "OR" gate with a first input to which electrical pulses delivered by the particle detector are applied, at least one additional input to which electrical pulses delivered by the second particle detector are applied, and an output connected firstly to an input of the counting means (4) and secondly to an

input of an "OR" gate of the counting means of the third particle detector.

3. Particle detector according to claim 2, in which a monostable device is placed between the output from the means (1, 2, 3) of delivering electrical pulses starting from the detected particles and the first input.

4. Particle detector according to either claim 2 or 3, characterized in that the means capable of receiving and transmitting electrical pulses originating from at least one second particle detector to the counting means (4) and the means capable of transmitting electrical pulses that it delivers and electrical pulses that it receives from the said second particle detector to the counting means of a third particle detector include a switch (A, B) installed in series on the additional input.

5. Particle detector according to claim 1, characterized in that it comprises means (C) capable of inhibiting operation of the counting means (4).

6. Particle counting device, characterized in that it comprises several particle detectors according to any one of claims 1 to 5.

7. Counting device according to claim 6, characterized in that the particle detectors are arranged in the form of a matrix of detectors.

8. Counting device according to claim 7, characterized in that it includes means of arranging particle detectors in the form of N blocks of n x m neighboring particle detectors, where N, n, and m are integer numbers equal to or greater than 1, such that at least one block of particle detectors includes a particle detector that counts particles detected by all or some of the particle detectors in the block.

9. Counting device according to claim 8, characterized in that it includes means of modifying the number of particle detectors that participate in at least one block of particle detectors.

10. Counting device according to any one of claims 7 to 9, characterized in that a particle detector Di/j located at the intersection of a row of rank i and a column of rank j, comprises an "OR" gate with three inputs, a first additional input being connected to a first switch (A) and a second additional input being connected to a second switch (B), the first switch (A) in the particle detector Di/j being connected to the output from the "OR" gate of particle detector D(i-1)/j and the second switch (B) being connected to the output from the "OR" gate of particle detector Di/(j-1), the output from

the "OR" gate of detector Di/j being connected to the first switch (A) of the particle detector D(i+1)/j and to the second switch (B) of the particle detector Di/(j+1).

11. Process for reading particle detectors, characterized in that it comprises a step during which at least one first particle detector receives and counts pulses delivered by at least one second particle detector and a step during which the pulses delivered by the first particle detector and the pulses delivered to the first particle detector by the second particle detector are transmitted to counting means in a third particle detector.

12. Process for counting particles detected by a matrix of particle detectors, characterized in that it comprises a control step to arrange particle detectors in the matrix in the form of N blocks of n x m neighboring particle detectors, where N, n and m are integers greater than or equal to 1, the particle detectors in at least one block being read by means of a process for reading a detector according to claim 11 such that a particle detector in the said at least one block counts particles detected by all or some of the n x m particle detectors in the said block.

13. Process according to claim 12, characterized in that it comprises inhibition of the counting means of particle detectors in the block, other than the particle

detector in the block that counts particles detected by all or some of the m x n particle detectors.